Philosophy of Instructional Technology

Teaching and Learning in the 21st Century

Sharon Caine

Introduction to Instructional Technology

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Today people of all ages are seen using some sort of mobile device, like a cell phone, iPod, or iPad to name a few. People are communicating with others through texting on cell phones or on Twitter, Facebook or talking. They might be playing elaborate to simple games on their computer, mobile device or on a games system hooked to the internet. Many are watching movies using Netflix or a past episode of a television show on their computer. Recently in an airport, I saw a mother on her cell phone talking and next her were two girls. One girl, about in her teens, was intently texting on her device and the other, a toddler, had a movie running on a tablet.

Many of today’s students have grown up or are growing up with these technological devices and have used technology to communicate or access entertainment on their own. Rosen (2011) states, “Watch typical teens or preteens at home, and you will see them constantly switching between their laptop, cell phone, television, MP3 player, and video game console”. The information is accessed and applied quickly with immediate feedback to solve a problem or accomplish a goal. So the attitude among students is that if you don’t know something, look it up on the internet or if you don’t get it exactly right, no problem you do it again. This all motivates and engages children to try something new with little direction or some direction from their peers. They employ quick trial error strategies.

These technological devices are changing the way children learn which is why children are referred to by the name ‘digital natives’, where they talk and think in digital terms first. Or they are referred to as‘21st century learners’, who turn to the internet for information on how to accomplish any task. Their world is infiltrated with technology of some sort, even if it’s only a gaming system. Students need to be supported in learning how and when to effectively apply their skills when solving problems and this should incorporate the style that they already used successful. I am building on their prior knowledge when formulating my own philosophy of Instructional Technology for teaching and learning in the 21st century. Rosen (2010) states that “by embracing the students’ love for technology and bringing it into the classroom, teachers allow students to make meaning out of their learning experience, as well as prepare them to enter society as successful and prepared job candidates “.

These same students, who encountered technology and learned to use it in their own way, enter school and expect to continue to learn as they have at home or elsewhere. Schools need to help students make the transition to learning and applying technology as educational learning tools. In today’s educational environment, the students are the center of learning not the teacher and not the technology. The teacher needs to assume the role of a facilitator who guides their students into a deeper learning experience where the student also takes a major role in deciding their own learning goals. The teacher, as a facilitator, needs to be trained and continue to learn how to incorporate technology in a seamlessly integrated way throughout the learning environment. “A pre-requisite for seamless integration of technology in the preK-12 classroom is well-trained teachers who are committed to taking advantage of technology, and who understand how to use technology to improve the quality and effectiveness of education” (Poole,2009).

As 21st century learners, students need to know how and when to use the tools available to them. These skills cover the skills needed to determine the accuracy and relevancy of the information when solving a problem or completing an activity. The main purpose of the activities, in web based learning systems, is to be able to use information to solve authentic problems that they as citizens will face in their lifetime. The emphasis is not on just giving back the information provided but in applying the information in unique and creative ways which shows true learning. Students learn by building on prior information with the expectation of applying what was learned and experienced. They need to know which tools will meet their needs the best for collecting and analyzing data as well as presenting it to others. These projects are also done collaboratively, as well as individually, and ideas can be shared outside of school, between classrooms and with other schools in or outside their country. The community of learning is dictated by the purpose of the task. Teachers need training and support in creating these kinds of activities or learning environments to make sure that they are effective and align with standards.

Teachers and administrators need to keep in mind that the students come with a variety of experiences, skills, and prior knowledge about the content areas and the same is true for technology. When designing lessons, teachers know their content areas in-depth and how to align them to the curriculum. Teachers have learned strategies to present their specific content areas to achieve the learning and understanding necessary when teaching their students. Teachers now need to add technology to their list of skills to know and integrate into the classroom. “A framework for teacher knowledge for technology integration…a complex interaction among three bodies of knowledge: content, pedagogy, and technology” is known as TPACK (technological pedagogical content knowledge) as defined by Koehler and Mishra (2008).

The teachers have to decide not only when and how to use technology but which technology, if any, is appropriate for the content, the learner, and the learning experience when fulfilling curriculum requirements. When using the TPACK framework, teachers incorporate the knowledge of: technology, their content and pedagogy when creating effective lessons. “These bodies of knowledge interact…to produce the type of flexible knowledge needed to successfully integrate technology in the classroom” (Koehler and Mishra, 2008). This is new to many teachers who have been in the classroom. Training for the teachers in how to think flexibly when incorporating technology has taken a back seat while teachers learn the technology itself. Once teachers become facilitators and let students take on some of the responsibility for their own learning, teachers themselves will gain knowledge by leaps and bounds. Today’s teachers, who mostly speak digital language as a second language, can learn a lot from their students, who speak it as a first language. This becomes a collaborative where teachers and students share their expertise.

When considering students and their disabilities, teachers see a benefit to the variety of technologies that is available. Students can learn on an equal basis with text-to-speech helping the auditory learners or poor readers while visual presentations help clarify knowledge for the concrete learners to name a few. Differentiating instructions through technology tools is a powerful concept in the 21st century classroom. “Students can work on significantly different levels at their own pace without affecting other students progress” according to Rubenstein 2010. This differentiating of learning allows everyone to contribute to solving a problem using their strengths. The visual learner can provide the graphics or interpretation in a visual form, while those who learn from text can give the written forms needed. The students whose strength is in listening and speaking can gain knowledge in many ways and help in presentations. All are engaged and learning in their own learning styles and at their own pace. This allows everyone to focus on their abilities and feel like they are truly part of the group. Disabilities, which everyone has to some degree, are easily minimized by incorporating technology effectively into instruction.

Teachers and administrators, after considering their students’ academic background, that includes their skill and knowledge in content areas, are confronted with the equity of use and copyright issues surrounding technology. Many students copied what they needed or wanted from music to movies as they freely talk about ‘bootlegged” copies of these forms of entertainment. When a report was assigned, it became an exercise in cutting and pasting graphics and text. In schools with budget cuts, there are many materials being copied, but no one is aware, or cares, if they are they within the copyright laws. Since students come from these past experiences, teachers have to make it clear, by what they say and their actions, as to what the laws are in the areas of equity of use and copyright infringement. These laws and expectations need to be adhered to by the teachers, but teachers first must understand the social and ethical aspects of these issues.

Everyone is aware of infringement of copyright laws and the need for security on the internet. These get much publicity along with safety and security of information on the internet. Students and teachers are encouraged to protect their user names and passwords. Levels of administrative privileges placed in districts allow access to each user for certain information. Transcripts and grades are protected along with health information. Sites are blocked for their content and teachers become the watchdog for posting on other sites. So these are addressed through policies where blocks are put in place.

Ethical issues can’t be handled by just blocking a site or entry points on a server. Ethical use also includes access but not just for the physically disabled students but also for those students who don’t have the technology capability available at home. This has to also be considered when planning activities so that the technology divide that exists in many districts doesn’t hamper a students learning. Some schools loan computers or devices and at times have to make sure that the assignment can be done on as a stand-alone activity if there is no internet access available to a student. It’s best to ask on a form at the beginning of the year what the needs or concerns of a parent might be, so that accommodations are ready when needed, and then there is no problem later. Just because a household has electronic devices it can’t be assumed that students have access to the devices or the internet.

Williamson and Reddish (2009) present that “some of the prominent contemporary issues facing school technologists today are digital equity, privacy of electronic student records, student on-line safety and copyright infringement.” So once students have access to the technology necessary, digital equity is the next challenge. Digital equity is an area that schools are just setting policies for, like cyber bullying. Many student groups have tried to counter cyber bullying and help encourage peers to be safe on the internet. Teachers can monitor and be proactive about problems but students need to be made aware of the law as well as policies so that they can also be diligent about following the law and protecting each other’s rights. There are many layers to be considered as the boundary lines of our schools are becoming blurred as we access technology. Parents always need to be informed of what their students are being asked to do and what policies and laws are in place to protect them and others.

By using technology, teachers connect all things the students are learning, providing a broader educational experience and allowing them to apply all things that they learn, according to Boyd’s (2010) article. This makes for an integrated school that operates without walls and all information can easily transfer between content areas and the world. Education needs to departmentalize and teach students for the world that they will live and work in now and in the future. Only then will students see the relevancy for what they are learning and be able to transfer that learning to new situations that haven’t even been thought of yet. As students come across questions or points of interests, they will help to determine how to pursue or investigate it and the tools that will help them solve problems. Teachers need to be well versed in their content areas but also in technology to allow for this flexible thinking while still aligning with the Core Standards.

As a facilitator of technology, all of the topics mentioned: (1) integrating technology effectively into instruction, (2) TPACK framework, (3) Internet security, safety, and cyber bullying concerns, (4) legal issues of copyright infringement, (5) digital equity, and (6) the 21st century learner and digital native have to be considered and incorporated into policies as proactively as possible in an ever changing world to support teachers. Technology no sooner is developed and implemented before something else is being rolled-out. This makes it difficult for an individual to stay up-dated not just with hardware put also with programs and now apps. We need to support teachers so that they understand technology and its integration to be able to ask for more support needed when lessons, web/project based, or activity planning is being created. Technological facilitators need to be thought of as experts not only in repairs and hook-ups but as instructional technology facilitators.

If teachers are trained and supported in their use of technology adequately then they will be able to transfer that information to new situations. They need to understand and implement the TPACK framework as they create learning experiences for their students. As teacher become aware of technology and strategies to support its uses, all three areas of knowledge can come together. Teachers have the content and ways to effectively present that content. Instructional technologist knows the technology, devices and programs, and the learning that they will best support. There is a need to connect these areas for effective instruction. This needs to be done in teacher-prep programs and at in-services or professional sessions. Setting up a teacher collaborative online or at the school level has allowed staff to discuss issues and share ideas across the curriculum. This will eventually make it easier for them to come up with policies and be able to adapt or change them as needed in a timely manner. Teachers also need to me active participants in determining goals for their students and their schools.

Parents want their child to be ready to go into the real world and succeed. They are pushing for the schools to catch up with the world that their children already exist in, partly for the usage but also for how to use it. Parents didn’t grow up with what their children have access to and the access is at an earlier and earlier age. Parents face the dilemma of what to allow or not allow and want the schools to provide answers as to what the right balance is and to teach it to their children. This is one area, due the new brain research about the effects on children’s thinking; the schools do need to take the lead. Parents especially need to hear about internet concerns and the ways that they can monitor and protect their child. They also need to be advised of the copyright laws so that they can discuss this with their child. Parents can also collaborate to support the teachers and each other in helping their children to understand the laws, especially of infringement and equity. The parents might also need to learn computer skills so that they can help and monitor their children. Some schools have started on-line or face to face support in the evenings. We are dealing with those who were raised only with textbooks to those with a range of experiences using technology while in school. The schools of today have to close the gap.

Personally, as a constructivist, I focus on what prior knowledge students and teacher possess and determine what new knowledge can be incorporated to create a deeper understanding of technology and its uses to increase reading skills. The students are active participants and help set their goals and how to reach them. This lets the teachers and I design learning activities with them and determine if a strategy will help them. This definitely supports differentiated instruction and groupings.

As the teachers understand TPACK framework, the discussion is more realistic for the student and geared to learning activities that are more authentic. This creates a realistic relevant connection for the student between the skill or content and the real world. Sometimes movies were shown to use up time or games were used to keep the students engaged. A lesson can be recorded while sites and texts are introduced to support learning and an activity using all the information obtained can demonstrate understanding by presenting it in any form, chosen by the student. Technology isn’t just used in isolation but incorporated to form a learning experience.

As teachers become more comfortable in the TPACK framework, technology is not added for its WOW factor to grab the student’s attention but for its educational value to support or enhance the lesson. Technology considered and incorporated to support a student’s strength while diminishing a weakness. Where a building has wife, students can receive a project and as they go through classes, they learn skills or obtain information that will help them solve or complete the project. There will be a reason to pay attention and participate in the lessons. The students monitor their own learning as they work autonomously and then collaboratively to complete the project. Students will also come up with questions that will direct their learning. Since students haven’t been in schools where this has been their learning experience, they will need more guidance for a while. Teachers will also need support as they learn, implement and facilitate learning with technology integration.

I see the technology facilitator’s position as one that supports the teacher and the students through training, modeling, demonstrations, or just a reviewer while keeping administration informed of the needs and successes. I need to build on and incorporate the strengths and knowledge already in existences and to what degree, they are mastered, in my plans. This will give me an idea what’s needed and by whom. I can then tailor my offerings to teachers, parents and students so as to make it relevant to them. This will keep them interested and engaged as they build on what they know. Because it’s easy to fall back on habit of copying information, I will post basic regulations in all rooms and especially the computer lab. Students will be able to voice concerns and suggestions so that they stay active participants. Blurry lines can be made a little clearer and maybe some of the current blocks won’t be as necessary. We will expand our classroom walls to include more of the world.

Every opportunity needs to be made to make all participants feel like they have an equal voice in what’s done and how. All will be addressed and answered and common ground will be reached. I will list my philosophy of instructional technology in bullet points so that I will follow my own plan, with room for adaptions or adjustments and always discussion. When IT controls the technology program, people get frustrated and lose interest due to feeling helpless and frustrated. IT needs to be part of the discussions because we expect them to support what is decided about technology usage, such as the BYOT. All stakeholders need to be considered and no matter what their role they all have an equal voice as we support and incorporate technology into instruction.

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